

CLAIM SET AS AMENDED

1. (Currently Amended) A system for processing a material, comprising:

a multi-stage pre-reduction system;

a multi-stage freeze system having first freezing means for freezing the material to a brittle temperature, the multi-stage freeze system being connected downstream with respect to the pre-reduction system; and

a pre-classifying system being connected downstream with respect to the multi-stage freeze system, and a plurality of fine reducers for reducing the material, the fine reducers being arranged in parallel and connected downstream with respect to the pre-classifying system;

a metal separator connected downstream with respect to each of the fine reducers;

a discharge unit connected downstream with respect to each of the metal separators,

the discharge units for releasing rubber fragments; and

heating and drying means connected downstream with respect to each of the discharge units,

wherein the material to be processed enters the multi-stage pre-reduction system, then is transported to the multi-stage freeze system, then is transported to the pre-classifying systems, and then is transported to said plurality of fine reducers.

2. (Currently Amended) The system of claim 1, wherein the freezing means comprises:

a first pre-freeze tunnel system injected with cold used refrigerant gas;

a first main freeze tunnel system for spraying a low-temperature liquid refrigerant onto the material; and

a first temperature equalizing system for equalizing a temperature of the material,

wherein the first pre-freeze tunnel system and the first main freeze tunnel system are arranged horizontally and ~~parallel to~~ in series with each other, and

the first temperature equalizing system is located ~~between~~ the first pre-freeze tunnel system and the first main freeze tunnel system.

3. (Currently Amended) The system of claim 2, wherein the multi-stage freezing systems ~~includes~~ further comprises a second freezing means, the second freezing means comprising:

a second pre-freeze tunnel system for using the cold used gas from the pre-freeze tunnel system to cool the material;

a second main freeze tunnel system for spraying the low-temperature liquid refrigerant onto the material; and

a second temperature equalizing system for equalizing the temperature of the material,

wherein the second pre-freeze tunnel system and the second main freeze tunnel system are arranged horizontally and ~~parallel to~~ in series with each other, and

the second temperature equalizing system is ~~between~~ located following the second pre-freeze tunnel system and the second main freeze tunnel system, and
wherein the first freezing means and the second freezing means are arranged in parallel to each other.

4. (Currently Amended) The system of claim 3, wherein the first freezing means and the second freezing means are connected in parallel.

5. (Withdrawn - Currently Amended) The system of claim 4, wherein the low-temperature refrigerant gas is removable from the first pre-freeze tunnel system, and
wherein a low-temperature refrigerant gas from another multi-stage freeze system is usable in the first pre-freeze tunnel system.

6. (Cancelled)

7. (Cancelled)

8. (Currently Amended) The system of ~~claim 7,~~ claim 4, further comprising post-processing devices,

wherein output from the post-processing devices is merged with ~~the~~ material separated in the pre-classifying system and is sent to separators of the pre-classifying system.

9. (Currently Amended) The system of claim 8, further comprising:

a multi-stage classifying means arranged downstream with respect to the separators of the pre-classifying system.

10. (Previously Presented) The system of claim 9, further comprising:

heavy-grain separators and light-grain separators connected downstream with respect to the multi-stage classifying means.

11. (Currently Amended) The system of claim 10, further comprising:

~~optoelectronic monitoring and post-sorting means~~

wherein the post-processing devices are connected downstream with respect to the heavy-grain and light-grain separators, the post-processing devices having post-sorting devices for separating remaining fiber contaminants.

12. (Withdrawn) The system of claim 4, further comprising:

cold gas fans and cold gas tubing lines for directing the low-temperature refrigerant gas from a refrigerant tank to the multi-stage freeze system.

13. (Withdrawn - Currently Amended) The system of claim 4, further comprising:
gas mixers connected to the first pre-freeze tunnel system, the second pre-freeze tunnel system, and the heating and drying means for merging the used refrigerant gas and drying gases.

14. (Withdrawn - Currently Amended) The system of claim 13, further comprising:
a granulate freeze system connected upstream with respect to the fine reducers; and
circulation system for returning the used refrigerant gas to the first pre-freeze tunnel system.

15. (Withdrawn - Currently Amended) The system of claim 13, further comprising:
a granulate freeze system connected upstream with respect to the fine reducers, and
cold gas fans and cold gas transport means for carrying used refrigerant gas to the first pre-freeze tunnel system.

16. (Withdrawn) The system of claim 15, further comprising:
heating and drying means, a mixer, and metering means for adding a dispersing agent,
the heating and drying means, the mixer, and the metering means being connected
downstream with respect to the fine reducers.

17. (Withdrawn) The system of claim 16, further comprising:

a powder classifying system, and light-material post-separating means for subdividing the material according to powder grain sizes; and

powder cleaning means,

wherein the powder classifying means, the light material post-processing means, and the powder cleaning means are each connected downstream with respect to the mixer.

18. (Withdrawn - Currently Amended) A system for the treatment of a material, comprising:

a pre-reduction system;

a freeze system divided into a plurality of freeze zones for spraying a low temperature refrigerant onto the material;

a temperature equalizing system;

a pre-classifying system being connected downstream with respect to the temperature equalizing system; and

multi-stage fine reducers arranged in parallel for stepwise reduction of the material; a metal separator connected downstream with respect to each of the fine reducers;

a discharge unit connected downstream with respect to each of the metal separators,
the discharge units for releasing rubber fragments; and

heating and drying means connected downstream with respect to each of the
discharge units,

wherein the pre-reduction system, the freeze system, the temperature equalizing system, the pre-classifying system, and the multi-stage fine reducers are connected sequentially in this order.